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10/820,747

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Je-hyoung Ryu

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11/27/2006

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EXAMINER

NGHIEM, MICHAEL P

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/820,747

Applicant(s)

RYU ET AL.

Examiner

Michael P. Nghiem

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2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 8-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-18 is/are allowed.
- 6) ☒ Claim(s) 1-5, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

The Communication filed on September 20, 2006 has been acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Leas et al. (US 5,929,651).

Regarding claim 2, Leas et al. discloses an inspecting apparatus (Figs. 1, 2) for a semiconductor device (30, 32) comprising:

- a match plate (22, 24);
- a contact module (31) combined with the match plate (Fig. 1), the contact module comprising:
 - a radiator (75, 76) to contact the semiconductor device (32), and
 - a tester (16) to contact leads of the semiconductor device (Fig. 2), and

- a thermally conductive pad (28) installed on a contacting face of the radiator (76 contacts 28, Fig. 7b), to transfer heat from the semiconductor device to the radiator (28 removes heat from 34, column 7, lines 53-54; it is possible heat transfers to 76, see Fig. 7b);

- a plurality of contact modules (31, 26),

- wherein the match plate is formed with a plurality of combining holes (83, 84) combinable with the plurality of contact modules (81, 82 of 26).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leas et al. in view of Fukuyama et al. (JP 2003-253224).

Regarding claim 1, Leas et al. discloses an inspecting apparatus (Figs. 1, 2) for a semiconductor device (30) comprising:

- a match plate (22, 24);

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- a contact module (31) combined with the match plate (Fig. 1), the contact module comprising:
 - a radiator (75, 76) to contact the semiconductor device (32, Fig. 7a),
 - a tester (16) to contact leads of the semiconductor device (Fig. 2),
 - a thermally conductive pad (28) installed on a contacting face of the radiator (76 contacts 28, Fig. 7b), to transfer heat from the semiconductor device to the radiator (28 removes heat from 34, column 7, lines 53-54; it is possible heat transfers to 76, see Fig. 7b),
 - wherein the thermally conductive pad is installed on the radiator (Fig. 7b).

Regarding claim 3, Leas et al. discloses that the thermally conductive pad is compressible (28 is deemed to be compressible to a certain degree).

Regarding claim 4, Leas et al. discloses that the thermally conductive pad is compressible from 1-2 mm (28 is deemed to be compressible if adequate force is applied).

However, Leas et al. does not disclose the following:

- regarding claim 1, the thermally conductive pad is installed on the radiator using a thermally conductive double-sided adhesive member.
- regarding claim 8, the thermally conductive double-sided adhesive member comprises an acrylic polymer.

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Nevertheless, Fukuyama et al. discloses a thermally conductive double-sided adhesive tape (tape is deemed to be thermally conductive) comprising an acrylic polymer (Solution) for the purpose of strongly fixing materials (Problem To Be Solved).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide Leas et al. with a thermally conductive double-sided adhesive tape as disclosed by Fukuyama et al. et al. for the purpose of strongly fixing materials.

Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leas et al. in view of Fukuyama et al. as applied to claim 1 above, and further in view of the following.

Regarding 9, Leas et al. **as modified** by Fukuyama et al. discloses a thermally conductive double-sided adhesive tape (tape is deemed to be thermally conductive) comprising an acrylic polymer (Solution).

However, regarding claim 5, Leas et al. as modified does not disclose the thermally conductive pad comprises a ceramic-silicon composite.

Nevertheless, it would be obvious to a person having ordinary skill in the art at the time the invention was made to provide Leas et al. as modified with a ceramic-silicon

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composite thermally conductive pad for the purpose of radiating heat, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Allowable Subject Matter

Claim 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 11-18 are allowed.

Reasons For Allowance

The **combination** as claimed wherein a contact pusher to contact the semiconductor device having the thermally conductive pad attached to a contacting face (claims 10, 11) or the compressible thermally conductive pad conforms to irregularities of the semiconductor device, preventing air from being present between the thermally conductive pad and the semiconductor device when the thermally conductive pad and the semiconductor device are in contact (claim 17) or a contact block combined with the lead pushers, the contact block being elastically combined with the contact pushers by a plurality of first elastic devices and

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elastically combined with the match plate by a plurality of second elastic devices, the contact block being formed with a plurality of through holes in which the heat flat pushers are located (claim 18) is not disclosed, suggested, or made obvious by the prior art of record.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.


Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-H.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MICHAEL NGHIEM
PRIMARY EXAMINER

Michael Nghiem

November 21, 2006